09/882817

ABSTRACT

A computer program product, an apparatus, and a method for modeling equivalent surface sources on a closed, arbitrarily shaped object that result from the imposition of an arbitrary time-harmonic incident field (e.g., a radar wave) are provided. An object divided into by a plurality of patches **302** and parameters for the incident field and the properties of the object **304** are provided to the system. Next, the system produces a discretized representation of a well-conditioned boundary integral equation in the form of a well-conditioned matrix equation, modeling the interaction between the incident field and the object **306**. The well-conditioned linear system is solved numerically to determine equivalent surface sources on the object **308**. The equivalent sources may then be used to determine electromagnetic fields resulting therefrom **310**. The invention provides improved computational efficiency as well as increased modeling accuracy by effectively reducing the numerical precision necessary.